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1984-2004, TWENTY YEARS OF SUCCESSFUL PROFESSIONAL DEVELOPMENT PROGRAMS FOR EDUCATORS

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1. INTRODUCTION

Many professional development programs and workshops are developed that last a few years and eventually fade away. It is quite rare in our rapidly changing world of recent years that two college professors from SUNY Brockport in New York would start a professional development program in 1984, and with refinement and growth to meet changing needs, now oversee an outstanding array of programs under AMS Education. This accomplishment was achieved by the hard work and vision of Dr. Ira Geer and Dr. Robert Weinbeck. New opportunities emerged as they moved to the AMS Education initiative and additional very talented university persons were brought on staff. Their programs and materials have brought great science to teachers and their students, always diligent to the standard that all of the information is scientifically verified and process correct. The influence of the programs and the efforts of the teachers they have trained have impacted science education in all 50 states, as well as many educators around the world. The wise decisions by Dr. Geer, Dr. Weinbeck, and the others have brought recognition to the programs on both national and international levels.

2. TWO DECADES

During the summer of 1984, 24 teachers of varying grade levels and backgrounds gathered at the National Weather Service Training Center in Kansas City, MO to work with a Dr. Ira Geer and NWS trainers. This NSF funded two-week program was the beginning of twenty years of outstanding professional development programs by Dr. Geer and Dr. Robert Weinbeck. It was also the beginning of great professional development opportunities for four of us as teacher participants who still work with them today, twenty years later.

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Besides the summer training programs, the first of many forms of teaching materials was produced, the weather Fact Sheet. It was a 4-page single topic information piece produced at SUNY Brockport with support from NOAA and NWS Training Center and NSF. As with all of their work, NWSTC teacher training participants were involved in the design and review of the materials. Each Fact Sheet had a two-page explanation section and two-page classroom and student activity section. Topics included: Weather Maps, Weather Forecasts, Local Climate, and new items of Weather Radar Imagery and Weather Satellite Imagery. The goal of providing the latest scientific information and technology use for the nation's educators has carried through the many years of training programs and materials.

From the Fact Sheets came the Everyday Weather Project. These were Teacher's Guides to be used by project participants after summer training sessions. During the late 1980's, these modules were used in local district and state workshops for area educators. It was also during this period that a very effective product devised by Dr. Geer was introduced in the Weather Systems module, called "The WeatherCycler", that is still available today. On the cover of each module was the statement that, "The goal of The Everyday Weather Project is to upgrade weather literacy by encouraging teachers to teach from the perspectives of real weather and weather as it happens." This goal is still a cornerstone of today's programs.

3. AMS EDUCATION

The professional development efforts of Dr. Geer and Dr. Weinbeck took on a greater level of significance and broader influence on science education for teachers and students of this nation. Dr. Ira Geer left the university setting to become the Director of AMS Education in 1991 at the Washington, DC office. In a couple of years, Dr. Robert Weinbeck would join him there in this expanded AMS Education endeavor. The results

have been outstanding programs that have helped teachers and students appreciate the rapidly changing concepts in meteorology and oceanography. Key to this effort was the establishment of Project ATMOSPHERE, a group of precollege master teachers from across the country who had completed the NWSTC summer program and were selected to become Atmosphere Education Resource Agents (AERAs). Besides being experienced peer-trainers using the program developed materials, most also were very active participants in state and national science education committees and particularly in state science standards and assessment development. Many became presenters at state, national conferences like this, and international conferences. In addition, opportunities became available to work on materials development with national scientists and meteorologists. This array of experiences is greatly appreciated by the participating AERA teachers.

In 1995, a major achievement was the development of the very successful online graduate course called DataStreme. The original transmission of course material was as an imbedded signal in a television transmission carrier. Eventually, it was decided to use a new media called an online Web Site or homepage. This has been a very effective medium with the growth of the Internet and access at schools and homes. It is a goal of the project "to provide instruction for teachers using near real-time weather data delivered electronically to classrooms nationwide". The NSF-supported DataStreme Project has made accessible a course in meteorology to thousands of teachers and enhanced the learning of hundreds of thousands of students. With additional funding, the course continues today and the web site is still used in classrooms by earlier participating teachers. Joining the AMS Education staff for this project were two U. of Wisconsin professors, Dr. Joe Moran who basically wrote the DataStreme textbook and Dr. Ed Hopkins who writes the daily weather summaries for the course. These and other well chosen associates have aided in the development of high quality products and programs. This program format has led to the development of another successful program, Online Weather Studies, an introductory meteorology course for colleges and universities using the DataStreme concept.

In 1991, Dr. David Smith, oceanography professor at the U.S Naval Academy, joined the AMS Education team. Primarily through the efforts of Dr. Smith and Dr. Geer, another program called the Maury Project was developed with summer institutes held at the U.S. Naval Academy in Annapolis, MD. Ocean studies peer-trainers have worked with hundreds of teachers using modules like: Density-Driven Ocean Circulations, Ocean Tides, and Measuring Sea Level from Space. This program continues with support from various agencies including the U.S. Navy.

4. EARTH SYSTEM SCIENCE

The most recent teacher enhancement program is Water in the Earth System (WES). This online course is being facilitated by leaders from both AERA and Maury trainers and provides a truly integrated system science approach to learning. The unifying concept is the water cycle, following water and related energy through the atmosphere, surface and ground water, and the oceans. Also addressed is the impact of humans along the way and events like El Nino and Global Climate Change. As with earlier programs, this one also has received outstanding reviews from educator participants across the country.

Presently being field tested is a new online course called DataStreme Oceans. It uses basically the same format and early indications are it will be equally as successful.

5. 20-YEAR PARTICIPANTS

In 1984, four teachers from very different parts of the country gathered in Kansas City to begin what has become a two decade journey under the able leadership of Dr. Geer and Dr. Weinbeck, Ira and Bob. Among that first group of summer institute participants were Steve Carlson from Oregon, Sharon Stroud from Colorado, JoAnn Mulvany from Virginia, and Lucky Geenleaf from Maine. During these many years we have enjoyed learning and working with great people from all 50 states and various other countries. We and the hundreds of other educators who have been participants in these programs hold a great deal of respect for Ira, Bob, and all the professors and staff that are the AMS Education team. From all of us who have been involved for many years to those who have joined us in recent years, Thank you!

6. REFERENCES

Teacher training materials from the various projects.